



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#9/Appeal
Brief
4-18-03
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In re Application of)
)
Tara L. Cobble et al) Art Unit: 2857
)
Application No. 09/742,879) Examiner: Elias Desta
)
Filed: 12/20/2000) Paper No.: 3
)
For: METHOD AND SYSTEM FOR)
PROVIDING DIAGNOSTICS FOR A)
WORK MACHINE)
)
Attorney Docket No. 00-104)
_____)

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Peoria, Illinois 61629-6490
April 7, 2002

Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

APPELLANTS' BRIEF IN SUPPORT OF APPEAL FROM THE PRIMARY
EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Sir:

This Brief in support of Appellant's Notice of Appeal is being submitted in triplicate pursuant to 37 C.F.R. 1.192. Please charge deposit account No. 03-1129 the filing fee of \$310.00 as specified in 37 C.F.R. 1.17(c) and any other charges required for the filing of this brief. Claims 1-22, and 25 - 45 are attached hereto in Appendix A, pursuant to 37 C.F.R. 1.192(c)(9).

Real Party in Interest

Caterpillar Inc. is the assignee of the present application and, therefore, is the real party in interest in the present appeal.

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Related Appeals and Interferences

There are no other pending appeals or interferences related to the application that is the subject of this appeal. Further, Appellant has no knowledge of any appeals or interferences which would have an effect on the present appeal.

Status of Claims

Claims 1-22 and 25 - 45 are pending in the application that is the subject of this appeal. The Examiner finally rejected claims 1-22 and 25 - 45 in the Office Action dated November 19, 2002. Appellant is appealing the rejection of claims 1-22 and 25 - 45.

Status of Amendments

Appellant filed an amendment subsequent to the final rejection dated November 19, 2002. The Examiner indicated in an Advisory Action dated March 11, 2003, that for the purposes of appeal, the proposed amendments will be entered. The Appellant contacted Examiner Desta on April 7, 2003, and in the telephone conversation Examiner Desta confirmed that the proposed amendments would be entered for purposes of Appeal.

Summary of Invention

The present invention relates to a computer based method and system for providing case based diagnostics for a work machine. Generally, a case contains diagnostic information and processes related to a work machine. For example, a case may contain a list of symptoms, a set of case bases, and a set of action items describing an appropriate repair or test. A case base contains questions and paths to possible repairs/test. The case base includes answers to the questions which are designed to lead the user to a diagnosis or an action item to solve the problem. The claimed invention also has the ability to dynamically read data values from the work machine during the diagnosis. In addition, the system may provide links to other systems having information desired to perform the diagnosis.

The present invention relates to receiving a description of an initial problem related to the work machine from a user (e.g., the engine overheats). At least one question is displayed

to the user, as a function of the initial problem (e.g., which type of value is out of specification, are there any diagnostic codes etc.). A list of possible actions to resolve the complaint are displayed to the user as a function of the initial problem (e.g., high temperature; transmission oil, too much oil in the transmission, or high temperature; rear axle, transfer brake is leaking etc.). The possible actions may also include confidence levels associated with the systems determination regarding the likelihood that particular action is the solution. The user then answers one or more of the questions presented [describe]. As the question(s) are answered, the possible actions, and confidence levels if used, are updated, i.e., a second set of recommended actions is displayed.

A question to be answered may indicate that there is additional information that is desired from the machine. For example, if the current hydraulic oil temperature is necessary to answer the question, then the user may select, or automatically be provided with a display enabling the user to request the system dynamically determine the hydraulic oil temperature. That is, the system may dynamically read data values from the machine. This feature helps ensure the proper measurements are obtained (since the system is performing the measurements), and reduces the time period to diagnose the problem by reducing the time the user has to spend acquiring additional information. In one embodiment, based on a users request (e.g., a specific request for machine information, of an indication to acquire the information dynamically, as needed by the system, the system dynamically determines the value of a machine parameter (e.g., engine oil).

Issues

1. Whether the Examiner erred in rejecting claims 10, 33, and 40 as being unpatentable over Molloy (U.S. Patent 5,787,234, hereafter referred to as "Molloy") in view of Nguyen et al. (U.S. Patent 6,125,312, hereafter referred to as "Nguyen"). The Examiner's arguments associated with the rejection as applied is applicable to each of the amended claims (1, 17, 21, 22, 44, and 45).

Grouping of Claims

With respect to each of the rejections, Appellants group the claims as follows:

1. Claims 1 – 22, and 25 – 45 stand together.

Argument

I. The Examiner erred in rejecting claims 10, 33, and 40 as being unpatentable over Molloy in view of Nguyen.

A. Claims 10, 33, and 40

Claims 1, 17, and 21 were amended after final rejection to include the limitation of Claim 10. In addition, Claim 22 was amended to incorporate the limitation of Claim 33, and Claims 44, and 45 were incorporated to recite the limitation of reading data values from the work machine in response to a user request, as recited in Claim 40. For clarity, the Examiner error will be discussed relative to Claim 10 and 40, to track the language within the corresponding Office Actions. Neither Molloy or Nguyen alone or combined teach or suggest “reading data values from the work machine in response to a user request” for providing case based diagnostics on a work machine, as recited in Claim 10.

In the initial Official Action [Official Action of 6/11/02, page 5, 3rd Full Paragraph], the Examiner stated that “Molloy discloses many features of the claimed invention, but *does not* disclose reading data values from the work machine. Nguyen et al. discloses reading data values from the work machine (Col. 1, lines 50 – 54 and Col. 2, lines 37 – 47).” In fact, however, Nguyen mentions that additional data external to information the system has access to may be needed. The Appellate successfully argued that, in contrast to the present invention, the solution in Nguyen is for the user to physically obtain the data: “For example, the user may be requested to obtain further data, measure a particular parameter or test a particular component on the engine in order to confirm whether a particular action is appropriate”. (Col. 3, Line 59 – 62). Nguyen, in essence, teaches away from having the system read values from the work machine.

In response to the above arguments, the Examiner then stated “the work machine *is* shown in Molloy Fig. 2 where the problems are directly read from the products or the working machine. Further, Molloy shows that the consultant obtains all the necessary

information from the original equipment manufacturer or vendor to make sure the problems to be diagnosed should have some known resolution”. However, Figure 2 of Molloy does not disclose reading data values from the work machine. Figure 2 illustrates the relationship of the information that may be used in the system disclosed in Molloy. For example, a product may be of a type of printer, a vendor of the product may be Epson, which may have an associated problem of poor print quality, and an associated diagnosis of worn ribbon (see Figure 6 of Molloy). That is, Figure 2 illustrates the inter-relationship of information, not dynamically reading data values from the machine. “Fig. 2 illustrates the interrelationships that are typically encountered among the various types of information found in a help desk environment.” [Col. 6 Line 51 – 53] “Fig. 2 depicts the relationships that might exist among the concepts found in an illustrative application of the invention”. [Col. 5 Line 17 – 19]. Figure 2 does not teach or suggest “reading data values from the work machine”. In fact, the Examiner has admitted on two occasions that “Molloy discloses many features of the claimed invention, but does not disclose reading data values from the work machine.” [Official Action of 6/11/2002, Page 5 2nd Full Paragraph], [Official Action of 11/19/2002, Page 5, 1st Full Paragraph]. Therefore, Molloy in general, and Fig. 2 and the associated description in particular, do not teach or suggest “reading data values from the work machine in response to a user request”. This fact is reinforced by the Examiner’s admissions. Therefore, neither Molloy or Nguyen alone or combined, teach or suggest: “reading data values from the work machine in response to a user request” as recited in Claim 10, and 40, or “reading data values from the work machine” as recited in Claim 33.

The Examiner has also stated that “Molloy shows that the consultant obtains all the necessary information from the original equipment maker or vendor to make sure the problems to be diagnosed should have some known resolution.” [Official Action of 11/19/02, Page 9, 2nd Full Paragraph]. Even if this statement is accurate, it does not have a bearing on the patentability of Claim 10, 33 or 40. For example, even if true, the ability to acquire information from the original equipment maker or vendor does not teach or suggest reading data values from a work machine. By way of example only, the current machine oil temperature is not a data value that may be obtained beforehand from the original equipment maker or vendor.

Therefore, neither Molloy or Nguyen alone or combined, teach or suggest: “reading data values from the work machine in response to a user request” as recited in Claim 10, and 40, or “reading data values from the work machine” as recited in Claim 33.

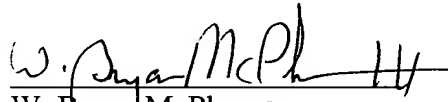
Claims 1, 17, and 21 were amended after final rejection to include the limitation of Claim 10. In addition, Claim 22 was amended to incorporate the limitation of Claim 33, and Claims 44, and 45 were incorporated to recite the limitation of reading data values from the work machine in response to a user request, as recited in Claim 40.

In light of the foregoing arguments, Appellant respectfully submits that the Examiner's rejection of claims 10, 33, and 40 as being unpatenable over Molloy in view of Nguyen et al. was improper. In light of this, Claims 10, 33, and 40 are believed to be allowable, and additionally, the amended claims 1, 17, 21, 22, 44, and 45 are believed to be allowable.

Conclusion

Applicants respectfully request the Board to reverse the Examiner's final rejection of the claims pending in the present application and to order the allowance of those claims.

Respectfully submitted,


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Appendix A
Claims Involved in the Appeal

Claims

1. A computer based method for providing case base diagnostics for a work machine, the case bases being comprised of diagnostic information and processes related to the work machine, including the steps of:
 - receiving from an user, a description of an initial problem related to the work machine;
 - displaying at least one question, as a function of the initial problem;
 - displaying a first set of recommended actions, as a function of the initial problem;
 - reading data values from the work machine in response to a user request;
 - receiving an answer from the user to the at least one question; and,
 - displaying a second set of recommended actions as a function of the initial problem and the answer to the at least one question, wherein the second set of recommended actions is one of a subset of the first set of recommended actions, a set of other recommended actions, and a combination of recommended actions from the first set and an other set.
2. A computer based method, as set forth in claim 1, including the step of displaying the answer provided by the user.
3. A computer based method, as set forth in claim 1, including the step of displaying a confidence level associated with each recommended action in the first and second sets of recommended actions.
4. A computer based method, as set forth in claim 3, including the wherein the confidence level is displayed as a bar graph.
5. A computer based method, as set forth in claim 1, including the step of displaying a status associated with each recommended action in the first and second sets of recommended actions.

6. A computer based method, as set forth in claim 5, wherein the status associated with each recommended action has a value one of performed or not performed.

7. A computer based method, as set forth in claim 1, including the step of providing a link to information related to the work machine in an external source.

8. A computer based method, as set forth in claim 7, including the step of displaying the information in response to actuation of the link.

9. A computer based method, as set forth in claim 1, wherein the step of displaying at one question includes the step of displaying two or more questions and wherein the computer based method includes the step of identifying inconsistent answers provided by the user to the two or more questions.

10. A computer based method, as set forth in claim 1, including the step of reading data values from the work machine in response to a user request.

11. A computer based method, as set forth in claim 1, including the step of displaying an alert link corresponding to the at least one question.

12. A computer based method, as set forth in claim 11, including the step of displaying an alert dialog in response to actuation by the user of the alert link.

13. A computer based method, as set forth in claim 1, including the step of displaying an alert link corresponding to at least one recommended action from one of the first and second sets of recommended actions.

14. A computer based method, as set forth in claim 13, including the step of displaying an alert dialog in response to actuation by the user of the alert link.

15. A computer based method, as set forth in claim 1, including the step of displaying a question detail window containing detailed information regarding the at least one question, in response to user selection of the at least one question.

16. A computer based method, as set forth in claim 1, including the step of displaying an action detail window containing detailed information regarding a selected action from one of the first and second sets of recommended actions.

17. A computer based method for providing case base diagnostics for a work machine, the case bases being comprised of diagnostic information and processes related to the work machine, including the steps of:

receiving from an user, a description of an initial problem related to the work machine;

displaying at least one question, as a function of the initial problem;

displaying a first set of recommended actions, as a function of the initial problem;

receiving an answer from the user to the at least one question;

reading data values from the work machine in response to a user request;

displaying a second set of recommended actions as a function of the initial problem, the read data values, and the answer to the at least one question, wherein the second set of recommended actions is one of a subset of the first set of recommended actions, a set of other recommended actions, and a combination of recommended actions from the first set and an other set; and,

providing a graphical user interface for operation by the user.

18. A computer based method, as set forth in claim 17, including the step of providing a diagnostic advisor window.

19. A computer based method, as set forth in claim 18, including the step of providing a tabbed window pane having a plurality of tabs, wherein selection of one of the tabs results in a respective one of a plurality of panels being displayed in the tabbed panel.

20. A computer based method, as set forth in claim 19, wherein each of the plurality of tabs corresponds to a diagnostic panel, a diagnostic code panel, and a functional tests panel, respectively.

21. A computer based method, for providing case base diagnostics for a work machine, the case bases being comprised of diagnostic information and processes related to the work machine, including the steps of:

receiving from an user, a description of an initial problem related to the work machine;

displaying at least one question, as a function of the initial problem;

displaying a first set of recommended actions, as a function of the initial problem;

reading data values from the work machine in response to a user request;

receiving an answer from the user to the at least one question;

displaying the answer provided by the user;

displaying a second set of recommended actions as a function of the initial problem and the answer to the at least one question, wherein the second set of recommended actions is one of a subset of the first set of recommended actions, a set of other recommended actions, and a combination of recommended actions from the first set and an other set;

displaying a confidence level associated with each recommended action in the first and second sets of recommended actions; and,

providing a link to information related to the work machine in an external source.

22. A computer based system for providing case base diagnostics for a work machine, the case bases being comprised of diagnostic information and processes

related to the work machine, comprising:

an external source containing service information related to the work machine;
a diagnostic advisor tool for interaction with a user, receiving information from the user and responsively displaying at least one recommended action, and providing a link to relevant information within the external source; and

wherein the diagnostic advisor tool is adapted to receive, from the user, a description of an initial problem related to the work machine, display at least one question, as a function of the initial problem, display a first set of recommended actions, as a function of the initial problem, read data values from the work machine in response to a user request; receive an answer from the user to the at least one question and display a second set of recommended actions as a function of the initial problem and the answer to the at least one question, wherein the second set of recommended actions is one of a subset of the first set of recommended actions, a set of other recommended actions, and a combination of recommended actions from the first set and an other set.

25. A computer based system, as set forth in claim 22, wherein the diagnostic advisor tool is adapted to display the answer provided by the user.

26. A computer based system, as set forth in claim 22, wherein the diagnostic advisor tool is adapted to display a confidence level associated with each recommended action in the first and second sets of recommended actions.

27. A computer based system, as set forth in claim 26, wherein the confidence level is displayed as a bar graph.

28. A computer based system, as set forth in claim 22, wherein the diagnostic advisor tool is adapted to display a status associated with each recommended action in the first and second sets of recommended actions.

29. A computer based system, as set forth in claim 28, wherein the status associated with each recommended action has a value of one of performed or not performed.

30. A computer based system, as set forth in claim 22, wherein the diagnostic advisor tool is adapted to provide a link to information related to the work machine in an external source.

31. A computer based system, as set forth in claim 30, wherein the diagnostic advisor tool is adapted to display the information in response to actuation of the link.

32. A computer based system, as set forth in claim 22, wherein the diagnostic advisor tool is adapted to display two or more questions and to identify inconsistent answers provided by the user to the two or more questions.

33. A computer based system, as set forth in claim 22, wherein the diagnostic advisor tool is adapted to read data values from the work machine.

34. A computer based system, as set forth in claim 22, including the step of displaying an alert link corresponding to the at least one question.

35. A computer based system, as set forth in claim 34, wherein the diagnostic advisor tool is adapted to display an alert dialog in response to actuation by the user of the alert link.

36. A computer based system, as set forth in claim 22, wherein the diagnostic advisor tool is adapted to display an alert link corresponding to at least one recommended action from one of the first and second sets of recommended actions.

37. A computer based system, as set forth in claim 36, wherein the

diagnostic advisor tool is adapted to display an alert dialog in response to actuation by the user of the alert link.

38. A computer based system, as set forth in claim 22, wherein the diagnostic advisor tool is adapted to display a question detail window containing detailed information regarding the at least one question, in response to user selection of the at least one question.

39. A computer based system, as set forth in claim 22, wherein the diagnostic advisor tool is adapted to display an action detail window containing detailed information regarding a selected action from one of the first and second sets of recommended actions.

40. A computer based system for providing case base diagnostics for a work machine, the case bases being comprised of diagnostic information and processes related to the work machine, comprising:

- an external source containing service information related to the work machine;
- a diagnostic advisor tool for interaction with a user, receiving information from the user and responsively displaying at least one recommended action, and providing a link to relevant information within the external source;
- a graphical user interface for operation by the user; and
- wherein the diagnostic advisor tool is adapted to read data values from the work machine in response to a user request.

41. A computer based system, as set forth in claim 40, wherein the graphical user interface includes a diagnostic advisor window.

42. A computer based system, as set forth in claim 40, wherein the graphical user interface includes a tabbed panel having a plurality of tabs, wherein selection of one of the tabs results in a respective one of a plurality of panels being displayed in the

storage medium having computer readable program code means embodied in the medium, the computer readable program code comprising:

computer readable program code means for receiving from an user, a description of an initial problem related to the work machine;

computer readable program code means for displaying at least one question, as a function of the initial problem;

computer readable program code means for displaying a first set of recommended actions, as a function of the initial problem;

computer readable program code means for reading data values from the work machine in response to a user request

computer readable program code means for receiving an answer from the user to the at least one question; and,

computer readable program code means for displaying a second set of recommended actions as a function of the initial problem and the answer to the at least one question, wherein the second set of recommended actions is one of a subset of the first set of recommended actions, a set of other recommended actions, and a combination of recommended actions from the first set and an other set.



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APPL PARTS

IMIS
Internal Misc. Paper
LET
Misc. Incoming Letter

371P
PCT Papers in a 371 Application

A...
Amendment Including Elections

ABST
Abstract

ADS
Application Data Sheet

AF/D
Affidavit or Exhibit Received

APPENDIX
Appendix

ARTIFACT
Artifact

BIB
Bib Data Sheet

CLM
Claim

COMPUTER
Computer Program Listing

CRFL
All CRF Papers for Backfile

DIST
Terminal Disclaimer Filed

DRW
Drawings

FOR
Foreign Reference

FRPR
Foreign Priority Papers

IDS
IDS Including 1449

NPL
Non-Patent Literature

OATH
Oath or Declaration

PET.
Petition

RETMAIL
Mail Returned by USPS

SEQLIST
Sequence Listing

SPEC
Specification

SPEC NO
Specification Not in English

TRNA
Transmittal New Application

CTNF
Count Non-Final

CTRS
Count Restriction

EXIN
Examiner Interview

M903
DO/EO Acceptance

M905
DO/EO Missing Requirement

NFDR
Formal Drawing Required

NOA
Notice of Allowance

PETDEC
Petition Decision

OUTGOING

CTMS
Misc. Office Action

1449
Signed 1449

892

ABN
Abandonment

APDEC
Board of Appeals Decision

APEA
Examiner Answer

CTAV
Count Advisory Action

CTEQ
Count Ex parte Quayle

CTFR
Count Final Rejection

INCOMING

AP.B
Appeal Brief

C.AD
Change of Address

N/AP
Notice of Appeal

PA..
Change in Power of Attorney

REM
Applicant Remarks in Amendment

XT/
Extension of Time filed separate

BACKFILE DOCUMENT INDEX SHEET

Internal

SRNT
Examiner Search Notes

CLMPTO
PTO Prepared Complete Claim Set

ECBOX
Evidence Copy Box Identification

WCLM
Claim Worksheet

WFEE
Fee Worksheet

File Wrapper

FWCLM
File Wrapper Claim

IIFW
File Wrapper Issue Information

SRFW
File Wrapper Search Info